

Application No.: 09/825,139  
Amendment dated: March 28, 2005  
Reply to Office Action of December 2, 2004  
Attorney Docket No.: 0016.0007US1

a.) Amendments to Specification

*Replace the paragraph beginning at page 1, line 12, in the specification as originally filed, with the following rewritten paragraph:*

--With advances in integrated circuit, microprocessor, networking and communication technologies, increasing number of devices, in particular, digital computing devices, are being networked together. Devices are often first coupled to a local area network, such as an Ethernet based office/home network. In turn, the local area networks are interconnected together through wide area networks, such as ATM networks, Frame Relays, and the like. Of particular ~~notoriety~~ relevance is the TCP/IP based global inter-networks, Internet.--

*Replace the paragraph beginning at page 1, line 16, in the specification as originally filed, with the following rewritten paragraph:*

--As a result of this trend of increased connectivity, increasing numbers of applications that are network dependent are being deployed. Examples of these network dependent applications include but are not limited to, email, net based telephony, world wide web and various types of e-commerce. Success of many of these content/service providers as well as commerce sites depend on the quality of service that they provide.--

*Replace the paragraph beginning at page 4, line 11, in the specification as originally filed, with the following rewritten paragraph:*

--Parts of the description will be presented in terms of operations performed by a processor based device, using terms such as nonce, identifiers, generating, inserting receiving, analyzing, determining, and the like, consistent with the manner commonly employed by those skilled in the art to convey the substance of their work to others skilled in the art. As well understood by those skilled in the art, the quantities take the form of electrical, magnetic, or optical signals capable of being stored, transferred, combined, and otherwise manipulated through mechanical and electrical components of the processor based device; and the term processor includes microprocessors, micro-

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controllers, digital signal processors, and the like, that are standalone, adjunct or embedded.--

*Replace the paragraph beginning at page 6, line 19, in the specification as originally filed, with the following rewritten paragraph:*

-- As a result, undesirable packets destined for servers 102a-120n may be advantageously detected and filtered by selected ones of routing devices 108 independently. As those skilled in the art would appreciate, under the novel approach of the present invention, the advantageous independent detection and filtering is effectuated notwithstanding the fact that the packets transmitted from servers 102a-102n to client devices 104a-104n may or may not be routed through the same routing devices 108. Specifically, there is no requirement for routing devices 108 to maintain state flow information in order to accomplish the independent detection and filtering. This ability of allowing any properly equipped routing device 108 to independently analyze and make a judgment on a received en-route packet enables any routing device 108 disposed in any one of a number of locations in internetworking fabric 106 to be so configured as to perform the independent undesirable packet detection and filtering. Thus, the present invention enhances the ability to provide early detection and filtering of undesirable packets, soon after the undesirable packets entered the network.--

*Replace the paragraph beginning at page 7, line 8, in the specification as originally filed, with the following rewritten paragraph:*

--Still referring to Figures 1-2, except for the teachings of the present invention incorporated with selected ones of routing devices 108, servers 102a-102n and client devices 104a-104n, these elements, including internetworking fabric 108, are intended to represent a broad range of servers, client devices, routing devices, and public/private networks known in the art. Routing devices 108 e.g. may be routers, switches, and the like, available from CISCO Systems of San Jose, CA, or Juniper Network, of Sunnyvale, CA. Servers 102a-102n may be servers available from Sun Microsystems of Menlo Park, CA, or IBM of Armonk, NY, whereas client devices 104a-104n e.g. may be computing devices of any form factors, from desktop to palm sized, available from Hewlett Packard

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of Palo Alto, CA. Internetworking fabric 106 may be inter-networked (wired and/or wireless) private networks of a private enterprise, or public networks (such as the Internet). Thus, except for the teachings of the present invention, these elements will not be otherwise described.--

*Replace the paragraph beginning at page 10 , line3 , in the specification as originally filed, with the following rewritten paragraph:*

--As illustrated in Figure 4, for the embodiment, the relevant components of the communication interface of the host server include generator 408 and a transmit interface. Generator 408 includes a deterministic function configured to generate a nonce based on a number of input values, including selected persistent information extracted from the packet and a secret value. Generator 408 "adds" the generated nonce into a predetermined field of the packet to be transmitted by the transceiver. For the embodiment, the components include register 406 for holding the secret value. Further, the input values to generator 408 include a sequence number of the nonce to be generated, and the components include counter 404 for generating the sequence number of the nonce.--

*Replace the paragraph beginning at page 11 , line7 , in the specification as originally filed, with the following rewritten paragraph:*

--As illustrated in Figure 7, for the embodiment, the relevant components of the communication interface of the host client device include storage cache 706, associated write pointer 704, and a transceiver (not shown). Storage cache 706 is used to store the server addresses, the included nonces and the sequence numbers of the nonces extracted from a packet received by the transceiver. Write pointer 704 is employed to denote the next storage location for use to store the most recently extracted data. In one embodiment, write pointer 704 is "advanced" or set employing a least recently used (LRU) replacement policy. For the illustrated embodiment, storage cache 706 is content addressable, allowing the most recent stored copy of the nonce (and its sequence number) for a server to be output for inclusion in a packet to be transmitted to a server by the transceiver, in response to the provision of the server's address as input. In another

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embodiment, the sequence number may be used to index the nonces instead. For this embodiment, the server may advance the sequence number periodically. Upon advancement, all nonces having "older" associated sequence numbers are considered "expired". Accordingly, the server and the routing device may signal each other and be synchronized to one another, without resorting to an operationally "expensive" distribution process to distributing keys/secrets to the routing devices.--